

Journal of the Royal Society of Arts

NO. 4975

FRIDAY, 13TH APRIL, 1956

VOL. CIV

FORTHCOMING MEETINGS

MONDAY, 16TH APRIL, at 6 p.m. The first of three CANTOR LECTURES, illustrated with lantern slides, on '*Modern Welding*', by H. G. Taylor, D.Sc., M.I.E.E., F.Inst.P., Director, British Welding Research Association. (The syllabus for these lectures was published in the last issue of the *Journal*.)

WEDNESDAY, 18TH APRIL, at 2.30 p.m. '*T. H. Huxley and Technical Education*', by Cyril Bibby, M.A., M.Sc., Ph.D. R. W. Holland, O.B.E., M.A., M.Sc., LL.D., Chairman of the Council of the Society, will preside.

MONDAY, 23RD APRIL, at 6 p.m. The second of three CANTOR LECTURES on '*Modern Welding*', by Dr. H. G. Taylor.

WEDNESDAY, 25TH APRIL, at 2.30 p.m. '*Beauty in Danger—the Rural Scene*', by Sir George Pepler, C.B., Past-President, Town Planning Institute. Dame Evelyn Sharp, D.B.E., Permanent Secretary, Ministry of Housing and Local Government, will preside.

THURSDAY, 26TH APRIL, at 5.15 p.m. COMMONWEALTH SECTION. '*The Snowy Mountains Scheme*', by C. M. Gray, O.B.E., E.D., M.Sc., A.M.I.E.(Aust.), Senior Representative, Department of National Development, Commonwealth of Australia. J. F. Herbert, B.E., M.I.E.E., M.I.E.(Aust.), of the English Electric Company, Ltd., will preside. (The paper will be illustrated. Tea will be served from 4.30 p.m.)

MONDAY, 30TH APRIL, at 6 p.m. The last of three CANTOR LECTURES on '*Modern Welding*', by Dr. H. G. Taylor.

WEDNESDAY, 2ND MAY, at 2.30 p.m. '*Beauty in Danger—the Urban Scene*', by Sir Hugh Casson, M.A., F.R.I.B.A., R.D.I., Professor of Interior Design, Royal College of Art. The Right Honble. The Earl of Euston, M.A., F.S.A., Deputy Chairman, Society for the Protection of Ancient Buildings, and Member, Historic Buildings Council for England, will preside.

MONDAY, 7TH MAY, at 6 p.m. The first of three CANTOR LECTURES on '*Some Recent Studies of Sociology*', entitled '*Class Conflict and Social Mobility*', by T. S. Simey, M.A., Charles Booth Professor of Social Science, University of Liverpool.

WEDNESDAY, 9TH MAY, at 2.30 p.m. '*Automation*', by the Right Honble. The Earl of Halsbury, F.R.I.C., F.Inst.P., Managing Director, National Research Development Corporation.

Fellows are entitled to attend any of the Society's meetings without tickets (except where otherwise stated), and may also bring two guests. When they cannot accompany their guests, Fellows may give them special passes, books of which can be obtained on application to the Secretary.

VISIT OF H.R.H. THE PRESIDENT

His Royal Highness The Duke of Edinburgh, who was attended by Lieutenant-Commander Michael Parker, R.N., visited the Society's House on Wednesday, 21st March, to take luncheon with the Council. Members of Council present were: Dr. R. W. Holland (Chairman), Mrs. Mary Adams, Dr. W. Greenhouse Allt, Mr. F. H. Andrews, Sir Alfred Bossom, Sir Edward Crowe, Mr. Robin Darwin, Sir Charles Dodds, Mr. P. Le Neve Foster, Mr. John Gloag, Mr. Milner Gray, The Earl of Halsbury, Mr. A. C. Hartley, Lord Latham, Sir Harry Lindsay, Mr. F. A. Mercer, Mr. O. P. Milne, Lord Nathan, Sir William Ogg, The Earl of Radnor, Mr. A. R. N. Roberts, Sir Harold Saunders, Sir Selwyn Selwyn-Clarke, Sir John Simonsen, Professor Dudley Stamp, Sir Stephen Tallents, Sir Griffiths Williams, Mr. J. G. Wilson and Miss Anna Zinkeisen, with Mr. K. W. Luckhurst, Secretary, and Mr. R. V. C. Cleveland-Stevens, Deputy Secretary.

EXHIBITION OF BURSARY DESIGNS

The exhibition of winning and commended designs in the 1955 Industrial Art Bursaries Competition will be held in the Library from Wednesday, 2nd May until Friday, 18th May. The exhibition will be open on Mondays to Fridays from 10 a.m. to 5.30 p.m., and on Saturdays from 10 a.m. to 12.30 p.m.

Special cards of admission will be required for the opening which, as already announced, will be performed by the Right Honble. Sir David Eccles, K.C.V.O., M.P., Minister of Education, at 12.15 p.m. on 2nd May. It is hoped that, although the majority of these must be issued to those who are directly concerned with the organization of the Competition, a number of cards may be available for other Fellows, and those interested should apply to the Secretary of the Bursaries Board by 23rd April.

THE IMPERIAL INSTITUTE

The following is the text of a letter which was addressed by the Secretary on Tuesday last to the Lord President of the Council, the Rector of the Imperial College of Science and Technology, the Clerk to the London County Council and the Secretary of the Royal Fine Art Commission:

In view of the active support given by the Royal Society of Arts to the foundation of the Imperial Institute, for which it raised a substantial sum by way of subscriptions, my Council have at their last two meetings given earnest consideration to the present proposal to demolish the Institute's building in order to make way for the extension of the Imperial College of Science.

While deeply conscious of the urgent needs of technological education, the Council regard very gravely the irrevocable nature of the step now proposed and, at their meeting yesterday, they passed the following Resolution, of which I was instructed to send you a copy:

'The Royal Society of Arts, one of the original subscribers to the foundation of the Imperial Institute is deeply concerned at the present proposal for the complete demolition of its building, which is not only an outstanding example of the architecture of its time but also commemorates an important event in the history of the Commonwealth. The Society urges that further consideration be given to the possibility of adapting at least the tower and façade to the uses of the enlarged Imperial College'.

JOURNAL INDEXES AND BINDING CASES

As was announced in the *Journal* for 6th January, the index and title page for Volume 103 are now available and will be forwarded free of charge to any Fellow on request to the Secretary.

Binding cases can be obtained direct from the Society's bookbinders, Messrs. P. G. Chapman & Co., Ltd., Kent House Lane, Beckenham, Kent, on payment of 4s. 6d. An index and title page will be included.

Copies of the ten-volume index, covering the period November, 1942, to November, 1952, are also available and will be sent on application to the Secretary. The price is 5s.

MEETING OF COUNCIL

A meeting of Council was held on Monday, 9th April, 1956. Present: Dr. R. W. Holland (in the Chair); Mrs. Mary Adams; Dr. W. Greenhouse Allt; Sir Alfred Bossom; Mr. Robin Darwin; Mr. P. A. Le Neve Foster; Mr. John Gloag; Mr. Milner Gray; The Earl of Halsbury; Mr. A. C. Hartley; Mr. William Johnstone; Lord Latham; Sir Harry Lindsay; Mr. F. A. Mercer; Mr. O. P. Milne; Lord Nathan; Mr. A. R. N. Roberts; Sir Harold Saunders; Sir Selwyn Selwyn-Clarke; Sir John Simonsen; Sir Stephen Tallents; Sir Griffith Williams; Mr. J. G. Wilson and Miss Anna Zinkeisen; with Mr. K. W. Luckhurst (Secretary), Mr. R. V. C. Cleveland-Stevens (Deputy Secretary) and Mr. David Lea (Assistant Secretary).

ELECTIONS

The following candidates were duly elected Fellows of the Society:

Abbott, Stephen Nash, Southall, Middx.
Allen, Charles William, St. Margarets, Middx.
Barnicot, John Martin, Leatherhead, Surrey.
Brasier, Cyril Stanley, Aylesbury, Bucks.
Courtois, Maurice Robert Cockayne, Coventry, Warwicks.
Fitzgerald, Miss Margaret Stewart, B.A., M.Sc., Dunedin, New Zealand.
Flogdell, Charles Roy, London.
Gardiner, Eric Charles, London.
Gough, Wilfred Felix, London.
Haddock, John Graham, Treorchy, Glamorgan.
Howarth, Carl Noel, Ayr.
Hutson, Marshall Christopher, Cork, Eire.
Khan, Maulud Ahmad, London.
Lashmar, Miss Pauline Rosemary, Sittingbourne, Kent.
Louis, Frederick Rickards, B.S.A., Harrods Creek, Kentucky, U.S.A.
Maxwell, James, C.B.E., London.
Phillips, John Dayton, M.A., Newport, Isle of Wight.
Priestley, Arthur, Hounslow, Middx.
Vickers, Donovan Russell, Isle of Sheppey, Kent.
Villar, Eng. Captain George, C.B.E., M.I.N.A., R.N. (retd.), Warsash, Hants.

The following were elected Associate Members as winners of Industrial Art Bursaries in 1955:

Hogarth, John, Bedlington Station, Northumberland.
Houle, Michael John, High Wycombe, Bucks.

ALBERT MEDAL

Further consideration was given to the award of the Albert Medal for 1956.

LOCAL RATES

Consideration was again given to the Society's position in regard to local rates and it was decided to pursue the matter further.

IMPERIAL INSTITUTE

Much discussion took place regarding the proposal to demolish the Colclutt building and a resolution was passed (see p. 397).

INDUSTRIAL ART BURSARIES EXHIBITION

It was agreed to accept an invitation to show the Society's Industrial Art Bursaries Exhibition (announced in another notice on p. 396) at the Production Exhibition at Olympia from 23rd to 31st May. (A note on the Production Exhibition will be found on p. 419.)

ANNUAL GENERAL MEETING

It was decided that the Annual General Meeting should be held on Wednesday, 4th July, at 3 p.m.

OTHER BUSINESS

A quantity of financial and other business was transacted.

RECENT DEVELOPMENTS IN THE FEDERATION OF RHODESIA AND NYASALAND

A paper by

*SIR GILBERT RENNIE, G.B.E., K.C.M.G., M.C.,
High Commissioner for the Federation of Rhodesia and
Nyasaland, read to the Commonwealth Section of the
Society on Tuesday, 31st January, 1956, with the Right
Honble. Lord Reith, P.C., G.C.V.O., G.B.E., C.B.,
T.D., Chairman, Colonial Development Corporation,
in the Chair*

THE CHAIRMAN: Lord Malvern has done many striking and clever things, and one of them was to appoint Sir Gilbert Rennie the first High Commissioner for the Federation in London. I call him Your Excellency, somewhat to his annoyance because he is not really an Excellency yet, as the Federation is not yet a self-governing dominion. But he will surely be an Excellency soon and perhaps he will tell us when—in other words when the Federation will be *de jure*, not just *de facto*, a dominion; and so himself *de jure* as he already is *de facto* His Excellency, Sir Gilbert.

The following paper was then read:

THE PAPER

To-day, as you know, my subject is 'Recent Developments in the Federation of Rhodesia and Nyasaland', and by recent I mean, for the most part, those that have taken place within the past 12 months. But even within that period lie so many subjects worthy of mention that for my purposes to-day I must exercise great restraint and make a brief selection lest I exceed both the time at my disposal and your patience. Since the chief reasons for seeking and securing the closer association of the three territories that comprise the Federation, namely, Southern Rhodesia, Northern Rhodesia and Nyasaland, were economic, and since the most striking developments during the past 12 months have been of an economic character, I propose to confine my talk mainly to such matters, touching only briefly on one or two other subjects.

At the outset I must give pride of place to the Federal Government's decision, which was taken early last year, to proceed with the Kariba scheme, the object of which is to dam the waters of the mighty Zambezi River at the Kariba gorge and so generate hydro-electric power in vast quantities at reasonable rates. The first stage of the scheme was estimated to cost £54 million and to provide some 500 megawatts of power. The Government decided to make a start as soon as possible with some of the preliminary work, although the necessary loans had not yet been raised, in order that full advantage might be taken of the dry

season of 1955 and a precious year might thus be saved. In June the Federal Hydro-Electric Board, which had been appointed and given responsibility for the execution of the project, let a contract amounting to £1,500,000 for preliminary works, such as clearing the site, exploratory work, and construction of a coffer dam, a diversion tunnel, a diversion channel, camps and housing, numerous access roads in and around the site, and an air strip.

Before I mention the progress that has been made with the work, I should like to remind you of the immense size of this project. The dimensions of the lake that will eventually be formed depend largely upon the height of the dam wall. The top water level of the dam has recently been set provisionally at 370 feet above the river bed—1,570 feet above sea level. The dam wall will thus be higher than the Victoria Falls, some 250 miles distant, or than St. Paul's Cathedral. The lake formed will be the largest man-made lake in the world, approximately 150 miles long, with an average width of 13 miles and a maximum width of some twenty miles.

How much work has been done on the site so far? My information is not entirely up to date but it is only a few weeks old. One of the most urgent works was the construction of the south access road (connecting the dam site with the main Salisbury-Chirundu road) by the Irrigation Department of the Government of Southern Rhodesia. It was a race against time and against the rains, but the work was completed just before the rains broke. Working long hours of overtime in great heat this 'task force' completed more than forty miles of all-weather road, through rough and broken country, in less than five months. A contract for the north access road, from the Chirundu-Lusaka road to the site, will be let early this year.

One of the most urgent of the preliminary works on the site is the construction of a coffer dam on the north bank. As you know, the object of such a dam is to exclude the water of the river from the foundations of the main dam wall, so as to allow of their being built dry. This work has also involved a race against time to complete a portion of the coffer dam foundations before the river rose and flooded the site. Here almost complete success was achieved before the floods intervened, and a very large portion of the lower levels of the foundations was completed. As regards the other preliminary works, I would summarize by saying that satisfactory progress has been made with all the items, and that some 200 Europeans and 2,000 Africans are working on the scheme at present.

A contract has also been let for the construction of a suspension footbridge to span the river at the dam site, and some parts of this bridge have already been delivered to the site. Meanwhile the river can be crossed by a pontoon bridge and also by a wire cableway. It is hoped that work on the construction of a township to accommodate the 500 Europeans and 3,000 African workers required for the main work on the dam will start early this year. The designs and drawings for this contract are in an advanced stage of preparation, as are also the designs and documents for the turbine generators, transmission lines, transformers and switchgear. The present layout envisages a total installed capacity of 12 sets each of 100,000 kilowatt capacity in two underground power stations, one tucked

inside the north bank, the other inside the south. The first stage will consist of five of these sets in the power station in the south bank.

The good progress made indicates that the policy of starting work last July was fully justified, and that this vast project is being tackled with the energy and urgency that circumstances demand and it itself deserves. Power should be available by 1959-60 for the expanding needs of the Copperbelt and of industry generally, and the over-strained railways should then receive some relief from the formidable task of carrying vast quantities of coal from Wankie Colliery to hungry industrial furnaces throughout the Rhodesias.

The huge new lake to be formed upstream from Kariba will cover a vast area in which many thousands of Africans live at present. For some time past the Governments of Southern Rhodesia and Northern Rhodesia have given much attention to the problem of resettlement, and both Governments are taking steps to ensure that suitable resettlement areas are selected and that the move from the old areas to the new will cause as little trouble as possible to the Africans concerned. The move will be carried out in appropriate stages and each stage will be very carefully planned and executed.

Before I conclude my comments on the Kariba scheme I would refer to the very difficult question of finance. As you know, the first stage of the project is now estimated to cost considerably more than the earlier estimate of £54 million—which itself is a vast sum of money. Negotiations are proceeding between the Federal Government and the International Bank for Reconstruction and Development, the Colonial Development Corporation, and other possible lenders and, although these are not completed, the Federal Government is confident that money for the Kariba Scheme will be available and that the loans (both external and internal) will not be raised at the expense of normal expansion within the Federation. Despite the vastness of the undertaking and the formidable character of the difficulties, financial, engineering, and other, attaching to it the Federal Government still considers the scheme essential to the future progress and prosperity of the Federation, its rapidly-developing industries and towns, and its people, and financially a very sound proposition. Incidentally, the possibilities of the lake for irrigation, fish production, and tourist and recreational facilities must not be overlooked.

I now propose to pass on to the subject of communications. In this sphere the most important event in 1955 was the opening of the south-east rail link connecting the Rhodesia railways system at Bannockburn in the midlands of Southern Rhodesia with the port of Lourenço Marques in Portuguese East Africa. That line was opened on 1st August last year and already three goods trains a day are passing each way. Passenger services have not yet been initiated on the Rhodesian side of the border, since the railway authorities feel it necessary to allow more time for the track to settle before passing faster-moving passenger trains over it.

This new rail link does much to relieve the pressure on the railways between Salisbury and Beira, and also on the port of Beira. As we all know, a rapidly developing country imposes a great strain on the country's communications,

especially its railway system, and the Rhodesia Railways have been given an immense task in recent years in being asked to cope with ever-increasing traffic, especially the carriage of coal. It is not surprising that they have not been able to move all the traffic that has been offering, although they have succeeded in handling more and more traffic each successive year, 22 per cent more coal was carried in 1955 than in 1954, and the goods carried in 1955 were more than 50 per cent above those carried in 1950; there was also a 25 per cent increase in passenger traffic between 1950 and 1955.

As regards the financial side, revenue increased from £10,265,782 in 1950 to £21,758,662 in 1955, and working expenditure from £8,701,349 to £17,263,539. This growth has been achieved only through the investment of very considerable sums in the railways. In the latest year of accounts, up to 31st March, 1955, nearly £8 million was spent on locomotives and rolling stock, ancillary works, and the construction of the new line. The rate of investment in the current year is likely to be higher; Sir Roy Welensky recently said that the Rhodesia Railways have budgeted for an expenditure of £25 million for the next three years and that more money would be needed. Locomotives have increased from 236 in 1950 to 377 in 1955, coaches from 372 to 576, and wagons from 6,501 to 9,585. Further orders have been placed for 23 locomotives and 2,130 wagons. Diesel-electric locomotives are being substituted for steam traction on the section between Umtali and Salisbury. Nine of these locomotives are now in service and the other 14 are expected in the early part of this year.

Besides expenditure on locomotives, rolling stock, and the construction of the new line, the railways are engaged on a massive programme of expenditure on the improvement of signalling and track conditions to speed traffic, reduce demands on staff, locomotives and wagons, and increase train loads and truck capacity. They have been severely handicapped in their efforts to expand their capacity by their inability to recruit staff in the numbers required, despite energetic recruiting campaigns. Improved terms of service have recently been approved, and the railway authorities hope that these will help to attract the necessary staff.

The year 1955 was one of continuous progress for Nyasaland Railways and a steady increase in traffic was maintained. One of the most interesting events of the year was the introduction of a fast and comfortable long-distance diesel railcar service, which has nearly halved the time taken by steam passenger trains for the journeys from Beira to Limbe (350 miles) and from Limbe to Salima in the north (166 miles).

Air traffic is playing an increasingly important part in the life of people in the Federation. Many persons use the excellent services provided by the Central African Airways as readily as people in the United Kingdom use trains or buses. The Corporation is at present carrying traffic at the rate of 140,000 passengers per annum between the places served by it on its route network, which extends from Johannesburg and Durban in the south to Nairobi in the north, and also includes the popular Colonial Coach class service between London and Salisbury. To bring its fleet of aircraft up to date the Corporation has ordered five

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RECENT DEVELOPMENTS IN RHODESIA AND NYASALAND

Viscount aircraft, the delivery of which is expected to begin in March this year.

The carriage of goods by air is increasing and an air-freight service between the United Kingdom and Central Africa was started last year by Hunting Clan Air Transport Limited. On the airport side, the Government has embarked on a four-year £3 million programme entailing the completion of the international airport at Salisbury, a replacement airport at Bulawayo, and the reconstruction of the Blantyre airport in Nyasaland.

As regards road reconstruction the Federal Government is continuing at present, to the extent that its funds allow, the plans drawn up before Federation by the three territorial Governments. £6½ million are provided in the 1955-59 Development Plan for road improvements. In general I may say that the main roads throughout all three territories are improving rapidly, and that travel in the rainy season is now much more comfortable and attended by less risk of delay than even a few years ago. One factor contributing to this happier state of affairs is the construction of high-level bridges over rivers crossing the trunk roads. Even more important is the tarmac carpet that takes the place of the old tarmac 'strips' or the dirt or gravel road. I will now turn to trade matters.

One of the Government's most urgent duties was to frame a uniform Customs tariff. The situation demanded the creation of a uniform tariff in a single operation to replace the three separate and divergent tariffs of the constituent territories which were at different stages of political and economic development and whose fiscal systems, patterns of trade and even contractual obligations varied. The Government had to ensure that the new tariff did not unduly disturb preferential margins and the pattern of trade that had developed in the territories; that it gave worthwhile federal industries the protection necessary; and that it provided the revenue required. The new tariff, which came into force on 1st July, 1955, affords the largest margin of preference to the United Kingdom and, in most cases, its dependencies. Preferences are also granted to the self-governing members of the Commonwealth and to a lower degree, to those countries entitled to most-favoured-nation treatment. The tariff has been further modified by trade agreements with the Union of South Africa and Australia, and both those agreements as well as the new tariff have received the close scrutiny of the Contracting Parties to the General Agreement on Tariffs and Trade, and have been approved. As regards trade policy generally, while the Government still maintains currency controls on non-sterling sources, the policy has been to liberalize trade to the maximum, particularly with Organisation for European Economic Co-operation and G.A.T.T. countries.

During the first nine months of 1955 the Federation had a favourable visible balance of trade with the outside world of over £33½ million. Exports were valued at £133·3 million (including gold), an increase of £21·18 million on the corresponding figure for 1954, while the value of imports rose by £7 million to nearly £99·5 million. 1955 shows a similar pattern to 1954, namely, a sterling deficit and a foreign currency surplus, but the 1955 figures illustrate the present strength of the Federation's economy. Preliminary estimates for 1955 indicate

a probable overall surplus on payments account of over £3 million. With the sterling area we shall probably run a deficit of £32 million. With the dollar and O.E.E.C. countries surpluses of £19 million and £17 million respectively are estimated. The chief reason for the increase in the value of exports was, of course, the great rise in the total value of copper sales, from £92 million in 1954 to an estimated value of over £110 million in 1955, but higher prices for tobacco, lead, zinc and chrome ore have also helped to swell the total. As regards the sterling deficit, it arises mainly with the Union of South Africa. That is natural. The Federation relies on South Africa for much of its consumer goods; as the Federation's industries increase, this dependence will diminish. I should like to emphasize that 42 per cent. of our imports were capital goods, which is a pointer to the wise use to which we put our resources. Once again the United Kingdom provided the Federation with its biggest export market, while at the same time it was the largest source of its imports. Exports to the United Kingdom during the first nine months of the year totalled £69,647,000, while imports from there amounted to £41,874,000. At this stage it may be appropriate to mention the growth in overall production (gross domestic product) in the Federation in recent years, since the relevant figures illustrate the remarkable expansion in the economy that is taking place. In 1950 the total for what is now the Federal area was £175 million, in 1953 it was almost £100 million more at £273 million, in 1954 the figure topped the £300 million mark at £305 million, and the estimate for 1955 is £355 million. Even after due regard is paid to the favourable change in the terms of trade, these are striking figures.

Now a word about external public debt. At the end of 1954 the net external public debt of the Federation, not only of the Federal Government but also of the territories, was some £116 million. This cost £5.5 million to service, but that is only three per cent of our external earnings. It is often argued that this favourable situation is attributable to the high price of copper, yet it is estimated that, even if the price of copper, at present in the region of £400 per ton, were to fall to around £200 per ton by 1960, the Federation would still receive £10 million more annually from copper owing to planned production increases. These facts speak for themselves. We have the means of meeting our obligations on borrowed money from overseas. The Minister of Finance has stated publicly that it is impossible in a country developing as rapidly as the Federation to do otherwise than borrow overseas, and it is intended to borrow to the fullest possible extent for development. Creditworthiness depends on many factors, psychological as well as economic. The partial success of the recent Federal loan here in London is no reflection upon the Federation. It was launched when all the portents were unfavourable, and it suffered accordingly, but on economic standards the Federation's credit must be rated high. Its external and internal positions are strong, and I think I have shown its ability to meet its overseas commitments.

Two very interesting financial developments in the second half of the year 1955 have been the flotation of the Rhodesian Anglo-American Corporation Development Company and the Rhodesian Selection Trust Exploration

Company. The first company was formed for the purpose of assisting development projects in the Federation, and it has undertaken to invest £5 million in rolling stock and rent it to the Rhodesia railways at economic rates. In this very helpful way part of the railways' capital development programme is being financed without further calls on Government capital resources. The Exploration Company established by Rhodesian Selection Trust has a capital of £1 million. It is intended to provide for the investigation of mining propositions, not necessarily copper, submitted by bodies outside the group's existing prospective activities, which might lead to new mining ventures in the Federation. These activities will be quite distinct from the long-term prospecting programme which the Rhodesian Selection Trust is already carrying out over large areas.

In the field of commerce and industry the past year has seen the rapid growth of the manufacturing industry and the expansion of markets for its increasing products. The attractive investment possibilities of the Federation, particularly in the industrial sphere, are being more widely recognized, not only in the United Kingdom and on the Continent of Europe but also in the United States of America. One has only to look at the increase in the number of registered factories in Southern Rhodesia alone to obtain some idea of the rate of growth: 1,252 on 31st October last year, 382 ten years ago. New companies were registered in the Federation at the rate of nearly 740 per annum during the past three years, 1952 to 1954, and the capital involved was over £10 million in 1952, over £17 million in 1953, and over £66 million in 1954, when some of the copper mining companies transferred their domicile to the Federation. Yet another indication of the tremendous development taking place in the Federation is the increase in the consumption of petroleum products—generally regarded as a reliable pointer to economic trends. In the past five years the increase has been 74 per cent, and the overall consumption last year of 75 million gallons was 29 per cent higher than that of 1954.

The influx of new capital and new industries has created a boom in building activities. The President of the Federation of Rhodesian Industries stated recently that the value of the buildings likely to be erected in the Federation during 1956 alone could easily exceed £35 million. The skyline of the larger towns changes constantly with the appearance of some magnificent new multi-storeyed buildings. Building plans approved by the Salisbury Municipality during the 12 months ending 30th June last year were valued at the record figure of £5½ million; the figure for Bulawayo for the same period exceeded £2½ million, and the figures for Ndola, Lusaka and Kitwe were £2·136, £1·8, and £1·37 millions respectively. The figures for the year 1955 are likely to be even more impressive.

The mining industry in the Federation continues its remarkable development. Copper production in Northern Rhodesia for the first nine months of 1955 was worth approximately £80 million, and it should easily exceed the £100 million figure for the full year for the first time in the country's history—a most notable achievement. Lead production was worth over £1¼ million, zinc over £1¾ million, and cobalt was worth nearly £1 million. In Southern Rhodesia the chief items of mineral production during the first nine months of 1955 were

gold £4·968 million, chrome £1·648 million, asbestos £5·097 million, and coal £2·545 million. These figures indicate that the annual value of mineral production in the Federation now exceeds £130 million a year. When we realize that that figure is roughly half the total of South Africa's mineral production we can judge its relative importance in the economy of the country. The new Chibuluma mine hoisted its first ore last year, and the much larger Bancroft mine will start production next year and add about 50,000 tons of copper (rising later to about double that amount) to the ever-swelling total. Southern Rhodesia also has its copper mines, smaller than those in Northern Rhodesia, and at present its production of gold, chrome, asbestos and coal is more impressive. A large deposit of nickel has also been discovered recently. In both Southern Rhodesia and Northern Rhodesia, and also in Nyasaland, much attention is now being paid to prospecting over large areas which have not been closely examined for minerals in the past, and I am confident that the attempts that are being made or planned to find minerals in these immense areas will be successful and add to the great mineral resources and wealth of the Federation. Uranium has already been found in the Copperbelt of Northern Rhodesia, and the British Atomic Energy Commission has recently opened an office in Salisbury staffed by a team of experts to advise the Federation on materials for atomic energy. I think I can safely say that the future of the mining industry in the Federation is bright. The copper ore reserves in Northern Rhodesia alone, of existing mines, developing mines and undeveloped mines, as some of you here will remember Mr. R. L. Prain mentioned in this room almost a year ago, are estimated at 700 million tons, capable of yielding at least 15 million tons of copper. At an average price of, say, £250 a ton, that represents £3,750 million, a very handsome sum.

A rapidly developing country needs immigrants and during 1955 the Federation increased its efforts to attract them. The cardinal principle of the Government's immigration policy is to obtain the maximum number of suitable new Rhodesians who can beneficially be absorbed in the Federal economy. There is no closed door to immigration, but there is selective immigration. Among the steps taken to attract new Rhodesians were the setting up of a special immigration branch within the Ministry of Home Affairs and the appointment of an Immigration *attaché* at Rhodesia House in London to stimulate the flow of migrants from the United Kingdom. Important also was the Federation's accession to the Inter-Governmental Committee for European Migration, which has its headquarters in Geneva, and to which the Federation was admitted as a member nation in May last year. Moreover, in November at the Hague, Lord Malvern signed a migration agreement between the Netherlands Government and the Federal Government, which should stimulate migration from Holland to the Federation. The Federal Ministry concerned has also encouraged the formation of Immigration Advisory Committees throughout the Federation, and nine of these are already in operation. A loan scheme was introduced last year whereby immigrants from the United Kingdom can be given financial assistance towards the cost of their own passages, and also of those of their

families if travelling at a later date. It was recently announced that the Federation's doors are now wide open to suitably qualified young persons between the ages of 18 and 35, and that no guarantee of assured employment is required of such persons before they migrate. I am glad to say that, as a result of all these measures, over 20,000 new Rhodesians were welcomed to the Federation during 1955.

Before I close I should like to say a few words about race relations in the Federation during the past year. A development of far-reaching significance was the agreement reached between the European Mine Workers' Union in Northern Rhodesia and the Chamber of Mines there on the subject of African advancement in the copper mining industry. The agreement provides for 24 categories of jobs at present held by Europeans to be thrown open to Africans and, after an independent firm of industrial consultants has made a detailed survey of every European job, negotiations will begin for the opening up to Africans of further categories of jobs at the end of the three-year period which the agreement covers. This agreement removes a source of grievance and a handicap which African workers have resented for some time and, by removing a great potential source of friction between white and black mine workers on the Copperbelt, it clears the way for better race relations not only on the Copperbelt but also in Northern Rhodesia and in the Federation generally. The conclusion of the agreement reflects great credit on all concerned. It is true that since then the European Mine Workers Union has stated that its members will refuse to train Africans in the work of the 24 categories covered by the agreement, but the European and African Staff Associations have informed the Chamber of Mines that their members will be ready to help. It is also true that the African Mine Workers Union and the African Staff Association have objected to the educational qualifications and rates of pay included in the mining companies' scheme for implementing the agreement, but I hope that negotiations will open the door to a settlement that will be satisfactory to all parties.

In general I would say that the concept of race relations accepted in the Federation is that the less civilized race will continue its advance and gradually rise to the level of the more advanced race and that individual Africans shall be allowed to advance on a basis of merit in the economic and political spheres with members of the more civilized race. During this process, difficulties are bound to arise at times, strains and stresses to appear, but the importance of harmonious race relations is clearly recognized by a large number of people in the Federation and they are earnestly trying to make the policy of partnership a success. They realize that without racial harmony the future prosperity and progress of the Federation and of the three countries comprising it will be jeopardized, and more and more people are very earnestly and conscientiously making a personal effort to exercise that goodwill and courtesy which do so much to improve personal relations between man and man anywhere. I was particularly struck with this happy aspect when I visited the Federation last May. Moreover, the Federal Government and the three territorial governments are also paying more and more attention to the welfare and progress of the Africans in many directions, both in

the towns and rural areas. It is inevitable that some people should consider that the rate of African advancement, especially political and social, is not fast enough, and that others should think that it is much too fast. I would ask all who think the pace too slow to reflect on the really remarkable advances that have been made by Africans over a very short period of years, and on the steady progress, especially economic, that is being made at present in so many directions.

I am sorry that time does not permit me to tell you of several other developments. I should have liked to speak of the Shire River scheme in Nyasaland, on which a start has been made, of developments in agriculture, where self-sufficiency is now being achieved; in education, where the urgent requirements of an ever-expanding school population scattered over vast areas create special problems; in health, where, for example, remarkable results have been obtained in the prevention and control of malaria in certain areas in Southern Rhodesia; in defence, where a system of four and a half months' continuous service has been introduced in the first year of compulsory military training for non-African citizens; in tourist traffic, and in broadcasting. I should have liked to tell you about the moving ceremony in Salisbury Cathedral last May (which I had the privilege of attending) when the new Anglican Church province of Central Africa was inaugurated; about the celebrations held in Livingstone over a period of several months last year of the centenary of the discovery of the Victoria Falls; about the progress that is being made with the building of the University College of Rhodesia and Nyasaland and the appointment of its staff, and about the start that has been made in the building of an Art Gallery—the Rhodes Centenary Gallery—in Salisbury. I hope, however, that I have said enough in the course of my talk to convince you that the new Federation is displaying vigour and vitality in many directions, that the Federal Government is tackling its problems with energy, enthusiasm, and efficiency, that the inevitable difficulties of a new constitutional entity of this kind are formidable but not alarming, and that the new State, under the wise leadership of its Prime Minister, whom we were all delighted to see made a Viscount last year, is making good progress. Richly endowed in its abundance of minerals, its natural resources, its attractive climate, its beauty of mountain, river, lake and forest, fortunate in its peoples and in its race relations, the Federation moves confidently forward into the bright future that shines ahead.

DISCUSSION

SIR SELWYN SELWYN-CLARKE, K.B.E., C.M.G., M.C. (Chairman, Commonwealth Section Committee): Sir Gilbert Rennie has given us a very vivid picture of recent developments in the Federation. The race against time which he described to accomplish essential preliminary work on the Kariba hydro-electric project and to complete the forty miles of all-weather southern access road before the rains broke, calls to mind similar exciting episodes when I served in West Africa.

Sir Gilbert tells us that the volume of water resulting from the 370 feet high dam would extend for a distance of 150 miles by an average of 13 miles broad. I wonder whether our lecturer could say how the potential menace from insect-borne disease will be met? Anti-malarial measures alone absorbed a considerable amount of manpower and funds when I last visited the Rhodesian copperbelt. It would be most

interesting, too, to learn more of the resettlement scheme of the 29,000 Rhodesian Africans to be displaced by this great man-made lake.

Might I ask Sir Gilbert to say how it came about that the 1955 Federal loan was, to use his own words, 'launched when all the portents were unfavourable'? It seems rather puzzling to me; for, whereas the servicing of the external public debt of £116 million costs £5½ millions, as he told us, the Federation will be receiving nearly double that amount even if the selling price of copper falls from roughly £400 to £200 per ton by the year 1960.

It makes very good hearing that the importance of race relations is so fully appreciated in the Federation and I am sure everyone here will agree with me that Sir Gilbert, especially when he was Governor of Northern Rhodesia, and, in the labour field, our good friend Mr. Ronald Prain, have contributed very largely to this harmony.

In a tuneful address on African music to this Section of the Society last Session, Mr. Hylton Edwards deplored the lack of interest in cultural activities in certain towns in the Union of South Africa. The building of the Rhodes Centenary Art Gallery in Salisbury, of which Sir Gilbert has just told us, suggests that the æsthetic side of life is not forgotten in the Federation.

I am very grateful to you, My Lord, for giving me the opportunity of saying how very much I, personally, have enjoyed Sir Gilbert's able address.

THE LECTURER: I did my best to anticipate a number of questions, but I regret to say the one about insect-borne diseases is outside that particular category, so I must generalize without any particular knowledge. I can only say that, so far as the Federal Ministry of Health is concerned, it has a very intimate knowledge of how to deal with malaria and to prevent malaria. The results that have been achieved in Southern Rhodesia in recent times have really been remarkable. So much so that in some of the areas to which the campaign had not been extended, the chiefs and the people themselves, having heard of the remarkable results obtained by the Health Department through spraying, have asked that those methods should be applied to their own areas. I can only argue from the probable and say that I am quite confident that the Federal Health Ministry, with its experience of tackling malaria behind it throughout many parts of Southern Rhodesia will, I am sure, turn its attention most effectively and most successfully to any problem that arises in connection with Kariba. I think we can take heart also from the fact that this very large new dam outside Salisbury itself, Lake McIlwaine, must have caused the Health Department to have a little experience in tackling that problem in connection with very large bodies of water. I would also mention that only the other day I was reading of the efforts that had been made to deal with the tsetse fly near the lake, and I came across a new term which I had not heard before which some members of the audience may know about. I was told that the Department concerned had used 'swing fog machines' most effectively to deal with the tsetse fly. Now what that means exactly I do not know, but again speaking generally I would say that the Ministry of Health in the Federation seems to be well up to date in its methods and I am sure will tackle any menace to the health of the people in the region of Kariba dam.

On the subject of the resettlement of Africans, that is a matter to which the Territorial Governments concerned, the governments of Northern Rhodesia and of Southern Rhodesia, have given a great deal of attention. In my day in Northern Rhodesia the question was receiving attention and the difficulty is to find suitable resettlement areas somewhere in the vicinity of the river. We had a number of surveys made while I was in Northern Rhodesia to see if we could find adequate fertile patches of land in the valley itself outside the areas that were likely to be flooded, in order that the Africans who require resettlement when the water rose over their old habitations could be moved to the new areas. That has also been done on the Southern

Rhodesian side and it is obviously intended to move the people by stages to the new areas that have been carefully reconnoitred beforehand. It is essential of course that the new areas should not only be fertile but should have good water supplies on the spot, and that any tsetse in the vicinity should be dealt with before the people move there. I think it was the provincial commissioner for the Southern Province of Northern Rhodesia who said two or three months ago that he hoped that in the course of the next year some 7,000 Africans would be moved into the new areas in Northern Rhodesia. I know that the Minister concerned in Southern Rhodesia made a personal tour round the areas affected on the south and east bank of the Zambesi River, in order that he himself might be fully acquainted with the problem and could plan the campaign that is necessary. There is also the point to be borne in mind that not only will the new areas be carefully reconnoitred, but certain types of work will also be done in them beforehand. In one report recently I read about the necessity of building 400 miles of access roads on the Southern Rhodesian side of the river to enable the areas to be properly opened up and additionally to enable heavy machinery to be moved into the area. So it looks as if in the preparation of the new land heavy machinery were going to be used which would greatly lighten the task of the African not only in clearing the land if there is any bush on it, but also in the actual preparing of the land for cultivation. On that point I think we need have no fear. I have no doubt too that in any areas where Africans are disturbed, and require resettlement, they will receive adequate compensation for any disturbance which may result.

The third point that Sir Selwyn asked about was the partial success of the Federal loan and why, in fact, the Federal Government went ahead with the loan if the portents were unfavourable. I think most of us here will remember that at that time the market was in a very unsettled condition; the credit squeeze was beginning to take effect and the market, if I remember rightly, dropped $3\frac{1}{2}$ points between the date on which the terms of the loan were announced and the actual date of application for the loans. If one remembers that, one realizes that, in a sense, the Federation was lucky to get the loan on as favourable terms as it did. If it had been a day or two later the terms would have been no doubt even more unfavourable to the Federation. As the Prime Minister said when he was asked about this, it is true that a great deal of the loan was left with the underwriters, but so far as the Federation was concerned it got the full amount of money that it was after.

THE CHAIRMAN: Does anybody know what the fog machines are?

HIS EXCELLENCY SIR THOMAS WHITE, K.B.E., D.F.C., V.D. (High Commissioner for Australia): The Lister firm makes the machine for killing insect pests by artificial fog. It is used in many parts. In Australia for example, it is used for killing fruit flies.

MR. C. HELY HUTCHINSON, M.C.: The record of progress, of prosperity and of prospect which Sir Gilbert has described is most wonderful. The result of that, of course, is that the Government's financial programme cannot fail to be an exuberant one. I feel sure that, as Sir Gilbert has forecast, they will successfully find all means which become necessary to nurture this development.

In this case there is rather an interesting parallel to draw between the present situation in the Federation and that in the old Cape colony of seventy years ago. Then by far the most predominant financial interest in that country was de Beers diamond mines, which had been formed by Mr. Rhodes. Just as at that time the surplus money which de Beers had been able to make by conducting their industry so efficiently was made available for the financing of various other instruments of progress, like railways, roads, and agriculture, so to-day there is also behind the Federation the enormous copper industry which, curiously enough, was founded as

a result of the operations of the Chartered Company, another of Mr. Rhodes' formations.

But man does not live by bread alone and as one who has lived half his life in South Africa and the other half in England, and is closely connected with affairs of Rhodesia and South Africa, I find that not the least interesting of the arrangements about the Federation is the policy which is enshrined in the preamble of the constitution, of promoting partnership and co-operation between the inhabitants of the Federation, and the way in which that policy will be interpreted and applied especially in the political field. There are those who take the view that progress is too fast and others that progress is not fast enough. On the one side are the Europeans who live in the Federation; I think it is right to say they are largely people who come from South Africa who hold and have inherited opinions with regard to the relations between Europeans and Africans. This is probably due to the fact that for the last two or three hundred years they have been living, a small minority, under conditions in which their very survival depended upon the maintenance of the complete supremacy of the Europeans. On the other side are, of course, the Africans themselves. They naturally will be pressing all the time for more and more political power, eventually leading up, inevitably perhaps, to their complete political domination as a result of their enormous numerical superiority. Fortunately the Federation has as leader Lord Malvern, under whose wise guidance this policy is being applied gradually and cautiously. Would Sir Gilbert give us some of his own opinions as to how that aspect of the affair is progressing?

HIS EXCELLENCY SIR THOMAS WHITE: Following on what the last speaker said, I would add that Rhodesia is not only a country for the great investor; it is also a country for the young farmer. There is opportunity there and I hope that in this Federation the interests in it will be maintained. It is a long way off, but it is the most important point of Africa from the British point of view. I say that having children and grand-children there.

I come from Australia, which is also growing rapidly; and we in Australia are taking an interest in Rhodesia. We have run an air service there from Australia, we have sent trade missions there. We have also sent a commission to help and advise them on constitutional matters; because as a country with a written constitution—you have not got one in Britain and you do not know the difficulties—we know some of the pitfalls. There is scope there for young British settlers to take up farms and assist the development of this fine country. There is plenty of land, and plenty of labour. Many people talk in an abstract way about how to help the African, but have they ever thought of giving him employment to make him happy, or of working with him? He feels happier on work than being fed with propaganda.

THE LECTURER: Mr. Hely Hutchinson asked me to express an opinion on some political matters. I am not sure to what extent it would be wise for me to do so in my present capacity. I am not sure that I have any political opinions, but I think it might answer his question if I quoted from Saturday's *Times* and quoted the Prime Minister, Lord Malvern, himself. Apropos of the question raised by Mr. Hely Hutchinson of what is going to happen in the future, whether there will be complete domination by Africans at some time, the Prime Minister said, 'The Federal Party does not accept as basic policy that decisive power must in the comparatively near future pass into the hands of Africans. We, as Europeans, have no intention of stepping out of the picture'. That is a part of a statement which deals with Trusteeship in the beginning. About that the Prime Minister said: 'Trusteeship is another word which is capable of more than one interpretation. We have, for example, to consider its meaning in relation to United Nations Trusteeship Territories. A Trustee is someone who holds something in trust for someone else. The usual implication is that the Trustee steps out of the picture when his services

are no longer required. This is the usual connotation when applied to territories. We, as Europeans, have no intention of stepping out of the picture. That is why the word partnership is much preferable. If and when Africans are in a position to contribute more to the partnership so they can have a greater share in it, but they can never become more than equal partners with Europeans'.

MISS GREENE: The idea that racial partnership is going to lead to racial harmony is open to a very grave measure of doubt. Lord Malvern has stated, as the speaker has just quoted, Africans can never become more than equal partners with Europeans. In view of the incredible disunity between the proportions of the population, however, it seems to me that if the doctrine of partnership is accepted in a full sense, in the way we are often being led to suppose it is being accepted, the numerically larger group will inevitably become dominant. I submit that it is most undesirable there should be any possible misunderstanding at this early stage as to what is meant by partnership. Continuance of white supremacy is essential in order for white immigration to be further encouraged and is also essential in the interest of the Africans themselves.

THE LECTURER: I do not know if I was asked any particular question there. The speaker, I took it, agreed very largely with my quotation from Lord Malvern's remarks. At one stage of her remarks she rather seemed to go, if I interpreted her remark correctly, on the basis of counting heads. I do not think that one can proceed very far in the Federation on that basis at the present time. As members here are probably aware, the Federal Government is proposing to bring forward a Franchise Bill and a Citizenship Bill in the course of this year. The question of franchise is one of the most difficult that any government can tackle. That is why the Government is taking some time to deal with this very difficult question, but it has been made perfectly clear, from many remarks by the Prime Minister and the other Ministers in the Federal Government, that partnership means no domination by either race. It does not mean domination by Europeans, or domination by Africans; partnership means partnership.

MR. H. NUTCOMBE HUME: The development of considerable electrical energy in this area, if it is to be successful, will bring with it a surge of industrial development, including what has come to be called secondary industry. Sir Thomas White knows a great deal about the development of secondary industry in Australia. Secondary industry cannot, in my submission, be successful except where there is applied to the physical assets adequate managerial skill and integrity, capable of turning those assets to good account. Efficient management and the good employer are just as necessary to make a success of any enterprise as are good physical assets including a plentiful cheap supply of power.

I have been now for some time on the Council of the British Institute of Management in this country, which is devoted to furthering this very problem. Here in this highly industrialized old-established country the lack of managerial capacity is very great. I do therefore ask Sir Gilbert to let us know whether his Government is studying this point of view, and whether they realize, as is the fact I think, that to train efficient management and through it bring happiness and contentment to the workers whatever the colour of their skin calls for considerable organization. I doubt if it can be achieved in a developing country like the Federation without considerable help including, perhaps, financial aid from the Government themselves. I commend to him that this is a very worthwhile expenditure.

THE LECTURER: I am very grateful to Mr. Nutcombe Hume for his remarks. One of the things which impressed me most when I looked through the expanding industry of the Rhodesias last year was the fact that the white man and the black man were both playing their part most efficiently in that expansion of industry. We had in some cases

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the importation of new industries either from the United Kingdom or from South Africa and the know-how came in along with the management and the leading technicians in the industry. It was astonishing how quickly the African learnt his part in the proceedings; the adaptability of the African in tackling all kinds of new types of work impressed me most favourably. Admittedly, a great many of the pieces of work were a matter of repetition, but he did go about his work well and I was told by some of the managers there that the African seems to get along without the boredom that comes to other types of workers at times.

How much my Government is doing in the way of studying the need for management, and how much it is leaving that to industry itself, quite frankly I could not say at the present time, but I am very grateful to Mr. Hume for making the point. I will make it my business to look into it.

SIR ROBERT STANLEY, K.B.E., C.M.G.: The facts and figures which Sir Gilbert Rennie has given make us realize the tremendous speed with which this great development is being carried forward.

When I had the privilege of serving under Sir Gilbert in Northern Rhodesia, immigration both into Southern Rhodesia and Northern Rhodesia was taking place at quite a considerable rate. Could Sir Gilbert tell us from which direction the 20,000 new immigrants who entered the Federation last year came? Is there still a large amount of immigration from the Union of South Africa and are those immigrants from the Union adapting themselves to the Federation's way of life?

THE LECTURER: In the 20,000 figure that I gave, the major portion of the new Rhodesians came from the Union of South Africa. The exact figures I could not quote, but I have in mind possibly the figure of about 7,000 from the United Kingdom, most of the balance from the Union of South Africa and, of course, we are also getting a number of new Rhodesians from the continent of Europe these days, through the Inter-Governmental Committee for European Migration that I mentioned, and in other ways. The whole idea, of course, of the Federal Government is so to absorb its new Rhodesians that they settle down as very good citizens, and I think it is fair to say that it is remarkable how most of the new Rhodesians, from whichever country they come, do realize the necessity of settling down and of becoming good citizens of this new Federation to which they have committed their future.

DR. C. C. CHESTERMAN, O.B.E.: Has Sir Gilbert any information about a new Medical School in Salisbury? I am thinking especially of facilities for the African graduate medical training.

THE LECTURER: This is another of those questions I did not prepare for beforehand, but so far as my knowledge goes, I think the Medical School is rather further in the future than some of the other activities that the University College is planning for at the present time. I think the College proposes to concentrate on arts and science in the first place and the Medical School will come later. I could look up my papers on the subject, no doubt I have the information somewhere, or I could obtain the information in answer to the question if necessary.

A vote of thanks to the Lecturer was carried with acclamation; and, another having been accorded to the Chairman, the meeting then ended.

THE HISTORY OF THE CIRCUS

A Dr. Mann Juvenile Lecture

by

ANTONY D. HIPPISELEY COXE

Wednesday, 4th January, 1956

The circus is not just a Christmas treat for the children. Everyone knows that most of them love it; but then, so do most sensible grown-ups. If there are more children than parents in a circus audience it only goes to prove that there are more sensible children than adults. The reason for this is that a lot of grown-up people are always trying to find a hidden meaning in things. A kind action makes them search for an ulterior motive, and few things are accepted at their face value. Yet the circus must always be accepted in this way, because it is the spectacle of actuality. Every trick performed in the circus ring is exactly what it appears to be; and there are eyes all round to see that there is no deception.

It is no use trying to trace this history of the circus back to Greece and Rome, for the classic circuses and amphitheatres were designed for a completely different type of entertainment. The story of the circus, as we know it, goes back no more than 187 years, to the time when Philip Astley discovered that, if he galloped in a circle while standing upright on a horse's back, he could use centrifugal force to help him keep his balance. In this way the ring was born; and the secret of the circus is the ring. To this circle of sawdust came jugglers, acrobats, strong men, trainers and gymnasts—in fact, all those whose feats relied on dexterity, agility and practical skill. For the ring enabled them to perform in the midst of the spectators, thus establishing the authenticity of the spectacle. From Astley's Amphitheatre in Waterloo Bridge Road the circus spread throughout the world. Everywhere the central pivot of a circus performance remained the trick-rider, for whom the ring was first designed. The circus is the one really international entertainment, because human skill can be appreciated anywhere; it does not rely on language to get across.

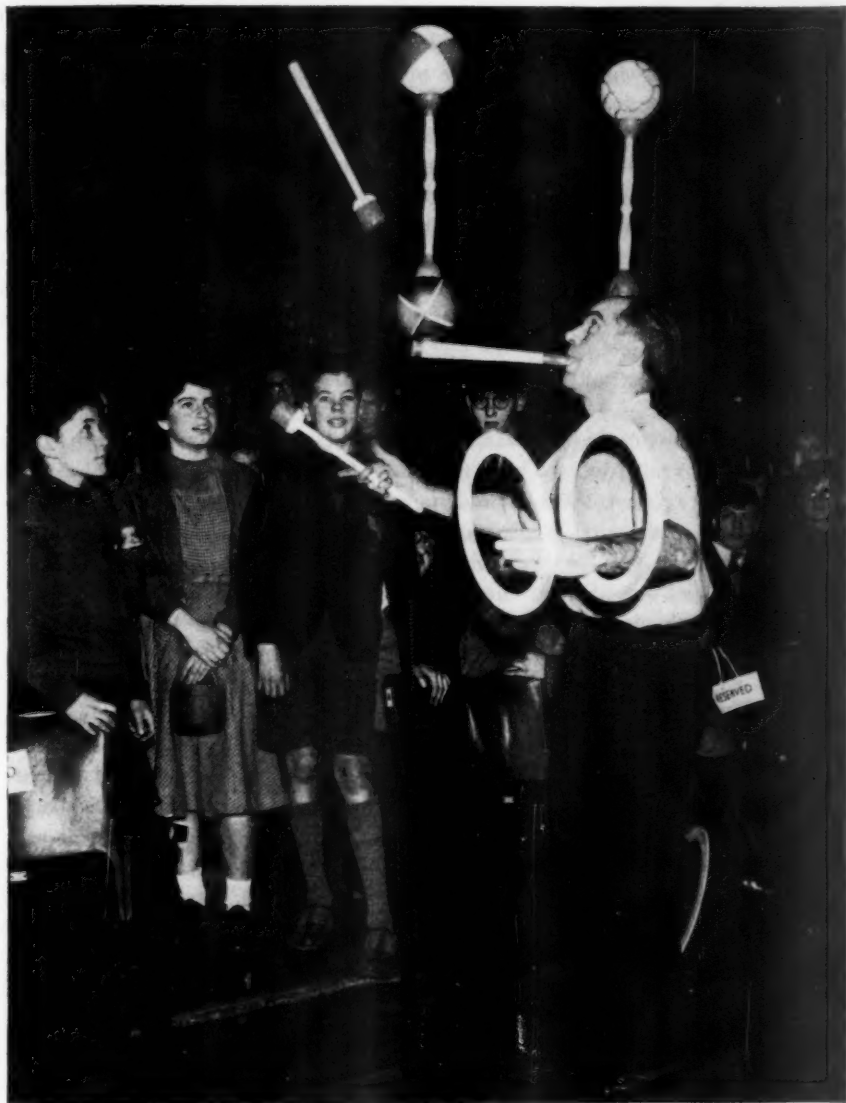
Various nationalities contributed to its development. An American invented the mechanic or riding machine, now used in training all trick-riders; and enabling artistes like the Fredianis to rehearse in safety a 'three-men-high' on horse back, and Lucio Christiani to turn a somersault from the back of one horse over the second to land on a third, as they canter in Indian file round the ring. A Frenchman, called Leotard, invented the trapeze, when he saw the cords of a ventilator hanging down from the roof of a swimming bath. The Rumanians developed the bar act. Czechoslovakians produced some of the greatest animal trainers.

There is more nonsense talked about animal training than any other aspect of the circus. I once set out to see for myself if training could be carried out

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entirely by kindness. I chose cats, the most difficult animals in the world to train. They jumped through hoops, walked the tight-rope, counted, worked a see-saw, and rang bells. To teach them to ring bells, I made them little belfries, and tucked a piece of meat between the strands of the rope. They soon learnt to pull the rope to get at the meat. The next thing was to get them to dissociate the meat from the rope itself, while still remembering that the action of pulling brought a reward.



Mr José Moreno demonstrating during the meeting

So the meat in the rope was decreased in size, while bigger bits were given from my hand. Soon they were pulling the rope while they looked at me. The fact that a bell rang did not worry them at all.

Such is the basis of all good animal training, whether lions or tigers, bears or elephants are the pupils. But the circus is a blend of human dexterity as well as animal skill, so let us study the juggler. In the old days juggling used to be linked with conjuring. But while the illusionist or manipulator uses the quickness of the hand to deceive the eye, the juggler uses the quickness of the hand to enchant the eye. Again there should be no deception. Let us study the basic movements of the 'shower' and the 'cascade'. Either the balls follow each other round in one direction, or they cross each other, right to left and left to right simultaneously.

Dexterity and agility such as this comes into acrobatic work too, and again the difficulties can be appreciated if a spectator takes the trouble to 'work it out for himself. Let us take a somersault on the wire. Which is the more difficult, a forward or a back somersault? Most people would say a back somersault; but if the movements are traced through in the mind's eye, it will be realized that in a back somersault, as the feet approach the wire to land, the eyes will be in a position to help guide the feet. In a forward somersault they will not. So a forward somersault is more difficult to perform on wire than a back somersault.

Wirewalking is one of the oldest turns which go to make up a modern circus programme. It really does go back to ancient Greece. In fact, our word acrobat was originally a Greek word for a certain kind of performer on the rope. The Romans, too, appreciated *funambulari*, a word which as *funambule* is still used in France to-day. And for them the Emperor Diocletian made safety nets compulsory. Just as wire- or rope-walking demands a sense of balance, so the bar act, at which Rumanians seem to excel, requires great strength. If one swings at arms length round a bar the pull on the wrists as one comes down to the vertical, with the bar directly overhead, is four and a half times one's own weight.

From Hungary come the best spring-board acts. They use a sort of see-saw, and one person, jumping from a pedestal onto one end, catapults his partner, standing on the other end up in the air to land on the shoulders of another member of the troupe, called the bearer. Sometimes a column, four-men-high, is built up in this way. Again there is no faking; things are exactly as they appear.

There is, however, one act in the circus which, because it is not serious, may include a certain amount of trickery: this is clowning. Clowns introduce a note of fantasy into a programme of fact. They, when our nerves have been screwed up with the excitement of thrills and danger, enable us to release our emotion in laughter. Just as something white looks even whiter if we place a spot of black alongside, so is the sense of actuality in the circus enhanced by the pretence of the clowns. There are two main types of clowns: the clown proper, who is always elegantly dressed in satin and sequins, whose face is always white and who never gets into trouble (though he often leads others into it) and his partner, the Auguste, who wears baggy trousers in loud checks, whose make-up is

grotesque and who gets into any amount of scrapes. Their history, too, goes back far beyond the circus; back through the *Comedia dell'Arte*, to Ancient Rome, and before that to classical Greece.

So much for the history and technique of some of the performers. But there would be no circus if there were no directors and proprietors. Here you will find dynasties: families who often specialize in one branch of the business, as well as being directors. The greatest have been horsemen. Astley, Franconi, Cooke, Carré, Rancy, Ciniselli, Renz—and the Schumanns and Kniets who are still with us—were great circus families who presented horses. These are the aristocracy. Hagenbeck and Krone were animal men. Barnum, Sanger and Sarassani were essentially showmen, masters of the craft of organization and the art of publicity. Behind the scenes there is always work to do. Even a small circus with four lions, twelve horses, six ponies, six dogs, three monkeys, two bears and one elephant takes a lot of organization, in arranging for food supplies alone. And it costs a lot of money. A proprietor of a show like this would have to spend £60 in keep alone.

Proprietors must have courage as well as performers: courage to fight fate, which can often be cruel. Last year a German circus went to Turkey. They were not allowed to take the money they had made out of the country. They landed at Malta in a dock strike, which meant they had to pay five times the normal rates to get the ships unloaded. Three days later a gale destroyed the tent, and the Royal Navy had to ferry them across to Sicily. At Christmas, in Ragusa, the town's electricity and water failed. Next storms flooded the tent. Between Messina and Palermo a railway tunnel collapsed on their train. At Palermo the elephants stampeded. In Rome it was so cold that no one dared go out, and the circus lost £450 a day, bringing its debts in Italy to £600,000. The manager said, 'It looks as though fate was against us. But if we go down, then we go down fighting'. Such is the spirit of the circus.

GENERAL NOTES

OUTSTANDING LONDON EXHIBITIONS

It is impossible to dissociate the later painting of Sir Alfred Munnings from his exuberant and wholly uninhibited personality. Indeed, the catalogue of his exhibition of over 300 works, at present filling the Diploma Gallery of the Royal Academy, continually refers one to the artist's ingenuous comments on his work, culled from his racy memoirs. Autobiography and a lifetime's painting testify alike to the manifold experiences of this untiring man: of steeplechases and the drowsy Stour, of half the peerage sitting in white breeches astride his studio saddle-horse, of days on Exmoor and nights at the Chelsea Arts Ball, of encounters with princes, jockeys, grooms, and vagabonds. It would be a churlish visitor who could remain quite indifferent to so much buoyancy and zest.

It would also be an uncritical visitor, one might think, who failed to recognize the more obviously demonstrative, and even flashy, character of his work that prevailed after the First World War, when the artist had become a securely established sporting artist. It is not often, in the past 35 years, that Sir Alfred has been able to recover the

humility, and sometimes almost lyrical feeling, of his early work. Nevertheless, it is likely that exacting students of painting might have been more impressed by the artist's later output in this exhibition had some of the many equestrian pictures been sacrificed for more of the quieter Suffolk landscapes and Exmoor studies, and the collection confined perhaps to three galleries instead of four. This might have been done even with the addition of a few more drawings, those grouped on a wall in the West Gallery being mostly studious ones, and less expressive than the artist's lively and spontaneous sketches.

All the same, there is much of interest—and not only in the first room of early paintings—in this first big retrospective exhibition of the artist's work ever held in London, arranged and catalogued with exemplary care by Mr. Humphrey Brooke. It is, of course, especially interesting to observe the painter's emergence as an agreeable rural artist of a 'New English' kind, given to La Thangue's dappled sunlight, and now and then revealing an instinct akin to George Morland's. Sir Alfred has always seemed most at ease when painting his models on the spot; and his earliest canvas exhibited at the Academy, *Stranded*, painted outdoors at the turn of the century, is as satisfying in its direct and unaffected way as his pictures of East Anglian ponies and pigs about this period. In later years, something like this mood is only recaptured when the artist has not been deliberately producing an Academy set-piece, but striving to record a transient effect of light, or the movement of a wild pony, in some rapid sketch in oils on panel. At the same time, there are, unquestionably, a number of finished paintings of his later period that impress one by their conscientiousness, rather than by their showy dexterity. A comparatively modest landscape of Dedham Church is an example; while a solid study of the horse *Hyperion*, painted about twenty years ago, could hang in the company of Stubbs without being discounted. There remains, of course, Sir Alfred's great output of work that must always have a documentary value in the annals of State occasions and of the Turf.

After this exhibition, it requires a considerable adjustment to attune the mind to the high and serious elegance of the French eighteenth century. In the splendid exhibition of 44 paintings, drawn from Mr. Wildenstein's scattered collection in Paris, London, and New York, and now assembled in his Bond Street premises, the emphasis is clearly on Fragonard and Boucher, though a score of other masters are represented, usually by little-known works. Among the Fragonards, that include a *rococo* rustic scene, and a little *Liseuse*, marvellous in its economy of statement, one might single out for special mention his portrait of Madame Bergeret (Bergeret de Grancourt's wife), an enchanting creature clasping a dove, painted in silvery green tones with touches of shell pink.

It is tempting to dwell at length on Mr. Wildenstein's collection; to linger, say, before David's lively head of Jules David, or Chardin's sketchy portrait of an artist, painted with easy mastery in Chardin's old age, or, again, before Madame Vigée le Brun's elegant likeness of the Countess Rasumovska, wife of the Russian Ambassador at Vienna. But less enthralling than any picture in the collection is, of course, the picture of an age of artistic taste, finished to the point of genius.

A last word is due to a memorable exhibition, at 4 St. James's Square, of works by Christian Rohlfs, a minor master who nevertheless occupies a unique place in the history of German expressionist art. In the last years of Rohlfs' long life that closed in 1938, when this visionary and solitary was living at Ascona, he produced a series of body-colour paintings of the flowers and mountains about Lake Maggiore that affect one profoundly by their mysticism; by the artist's power, in Mr. Hans Hess's phrase, 'to seize upon intangible experience, and turn it into visible reality'.

NEVILLE WALLIS

13TH APRIL 1956

GENERAL NOTES

PRODUCTION EXHIBITION AND CONFERENCE, 1956

The Production Exhibition and Conference, a biennial event, is to be held at Olympia from 23rd to 31st May.

The Exhibition, which is supported by the various official bodies concerned with improving production, will demonstrate both the techniques for increasing production and the quality of the processes by which production is achieved, as well as the value of the application of research to production. The organizers have invited each local productivity committee in the United Kingdom to select firms who will demonstrate at the Exhibition the ways in which they have raised productivity in their factories. An interesting innovation this year is the inclusion in the Exhibition of the selection of winning and commended designs in the Society's Industrial Art Bursaries Competition for 1955 which will be shown earlier in May at the Society's House. (See notice on p. 396) Firms, technical colleges and schools wishing to arrange group visits to the Exhibition should contact Andry Montgomery Ltd., 32 Millbank, London, S.W.1, from whom concession tickets are available at 6s. per dozen, with ten per cent rebate on 100 or more tickets.

Concurrently with the Exhibition, the Conference of the Institution of Production Engineers will be held on the theme 'Investing in Success'. Among the subjects to be covered are work study, education and training, and designing for production. Conference tickets, at 4s. per lecture, and full particulars, are obtainable from: The Secretary, The Institution of Production Engineers, 10 Chesterfield Street, London, W.1.

BRUSSELS 1958 EXHIBITION

In 1958 the first World Exhibition to be held since 1939 is to be staged in Brussels. Its keynote is to be the unity of mankind, and from April to November a 500 acre site will provide a meeting place in which the achievements of all nations, in every branch of human activity, will be demonstrated. Not only states, but also the international organizations have been invited to participate. As well as the national sections, there will be plenty of room for exhibits by individual firms from countries not officially represented in the Exhibition, and one sector of the Exhibition grounds will be set apart for those who may wish to sell, as well as exhibit, their products on the spot.

The Exhibition is being organized by two distinct bodies, working in close co-operation. The Commissariat General is the Belgian Government committee which is supervizing the plan as a whole, in the name of the Minister for Economic Affairs, while the practical implementation of this is in the hands of the Exhibition Company, under a Director-General.

Great Britain is one of 42 countries which have accepted the Belgian invitation to participate in the Exhibition. These countries have until 30th June, 1956, to submit their plans to the Commissioner General. Each country will undertake its own constructional work on the site allocated, employing either Belgian or foreign labour as it wishes.

The British section of the Exhibition will be composed of an official exhibit, representative of all aspects of the way of life in Great Britain, and organized by a Commissioner General responsible to the Foreign Office. The Industrial Pavilion, in which space can be rented by individual firms, is being organized by British Overseas Fairs, Ltd., 21 Tothill Street, S.W.1, to whom all enquiries from industry should be addressed.

DYERS' ESSAY COMPETITION

To mark the centenary of W. H. Perkin's discovery of the first coal-tar dyestuff, the London Section of the Society of Dyers and Colourists is offering a prize of

25 guineas for the best essay on 'The Influence of Perkin's Discovery, and of the Synthetic Dyestuffs which followed it, on any trade of the candidate's choice'. Competitors need not be members of the Society of Dyers and Colourists, but they must live, work or study in the area covered by the Society's London Section which is south of a line joining Great Yarmouth and Gloucester. They must be under 26 years of age on 31st December, 1956. Full details can be obtained from the Hon. Secretary of the Section, Mr. H. W. Taylor, 10 Milton Avenue, Sutton, Surrey.

OBITUARY

THE EARL OF HARROWBY

We record with regret the death, in Staffordshire on 30th March, of the Earl of Harrowby.

The Right Honble. John Herbert Dudley Ryder, J.P., fifth Earl of Harrowby, Viscount Sandon and Baron Harrowby was born in 1864 and educated at a private school and at Trinity College, Cambridge. From 1890 to 1894 he held a commission in the Staffordshire Yeomanry, and for two years, until his succession to the title in 1900, was Conservative M.P. for Gravesend. He was a partner in Coutts Bank and also, since 1930, Honorary Colonel of the 61st Field Brigade, Royal Artillery.

Lord Harrowby gave much of his time to public service in Staffordshire, of which county he was Lord Lieutenant from 1927 until 1948. He was active in promoting local branches of the British Legion, and also helped to bring into friendly relations ex-soldiers of allied and enemy nations. In 1949 he became first President of the newly opened University College of North Staffordshire, from which office he resigned this year.

He was elected a life Fellow of the Society in 1901.

SIR MONTAGUE HUGHMAN

We also record with regret the death, on 23rd March, of Sir Montague Hughman, a former Vice-President of the Society, at the age of 79.

Ernest Montague Hughman, M.I.E. (Ind.), was born in Leeds and educated at St. Mark's College, Chelsea, and received his early technical training as assistant to Mr. Robert Hammond, M.I.C.E. He was for many years engaged in engineering and shipbuilding in India, and travelled widely studying British, Colonial and foreign administration, with particular reference to the development of trade within the British Empire.

From 1924 until his retirement last June, he was a director of W. T. Henley's Telegraph Works Co., Ltd., and was its Chairman from 1933 to 1953. He was also, until his death, a director of the Barbados Electric Supply Corporation, Ltd. He was a Vice-President of the British Electrical and Allied Manufacturers Association (Inc.), and from 1920 to 1922 he was a member of the Council of the Institution of Engineers (India), of which he was one of the founders. From 1912 to 1921, in which year he left India, he was Hon. Secretary of the Indian Section of the Institution of Electrical Engineers.

Sir Montague, who was knighted in 1922, served on the Council of the Royal Society of Arts from 1936 to 1939. He was elected a Fellow of the Society in 1920.

MR. N. R. ROBERTSON

We also regretfully record the death, in Essay on 1st April, of Mr. N. R. Robertson, at the age of 47.

Norman Charles Robertson, C.M.G., M.B.E., M.Brit.I.R.E., A.I.E.E., a Senior member of the Institute of Radio Engineers, U.S.A., was educated at the Regent

Street Polytechnic, and after gaining experience with various electrical firms joined E. K. Cole Ltd., radio engineers, in 1930. In 1945 he became a Deputy Managing Director of the firm, which position he held at the time of his death, having been seconded to the Ministry of Supply from 1951 to 1953 as Director-General of electronics production. He was appointed M.B.E. in 1944 and C.M.G. in 1954.

Mr. Robertson was elected a Life Fellow of the Society in 1946.

SHORT NOTES ON BOOKS

THE CARE OF WOODWORK IN THE HOME. By Edward H. & Eva R. Pinto. Ernest Benn, 1955. 5s

Household woodwork is here considered from the point of view both of maintenance and of repair. There are chapters dealing with these aspects, and also with stripping, anti-beetle treatment, the preservation of structural timber and joinery, and the recognition of dry-rot. There are four illustrations.

RUTHERFORD: ATOM PIONEER. By John Rowland. T. Werner Laurie Ltd., 1955. 10s 6d

Lord Rutherford's life is here presented from the early days in New Zealand to the crowning achievements as Cavendish Professor at Cambridge. His early work on Hertzian waves, and his revolutionary research into atomic physics are described in this addition to the Shorter Lives series.

MODELLED PORTRAIT HEADS. By T. B. Huxley-Jones. Studio, 1955. 18s

Modelling in clay, and the casting and finishing of the final plaster replica, is the subject to which number sixty in the Studio 'How to do it' series is devoted. There are many illustrations of both ancient and modern sculpture, as well as of the various stages in the modelling of a portrait.

FROM THE JOURNAL OF 1856

VOLUME IV. 11th April, 1856

From a letter on: The Depreciation of Manufactures

SIR,—Every succeeding paper read on trades and arts within your arena tells us 'how shocking bad the articles are now-a-days', and what infamy is practised in their production. I take it that this very much overstated evil is a natural sequence from two circumstances. First, the substitution of middlemen, or distributors, between the producers and consumer—a necessary condition of a highly artificial state of society of dense numbers; and, secondly, the fact that humanity is made up of a few wise men, a considerable number of shrewd men not over conscientious, a very large number of foolish men, and a great general mass of ignorant men. From time immemorial, the shrewd, unconscientious men have been accustomed to prey on ignorant men and fools. They are the pikes amongst the gudgeons and flat-fish. Pills, and razors, and strops, and shirts, etc., are the baits wherewith they angle, from Packwood down to Morrison. In a dense city, a man buys a cheap article, tempted by apparent saving, and with the inward conviction that if it fails he can get another. In the western woods of the United States, he will take care to purvey him a proven axe, because he cannot there get another. In the days of Robin Hood, the tanner, butcher, or other, purchased his Sheffield whittle, wherewith to flay his 'capul hide', direct from the working cutler—mostly to order—so that he got something that really would cut. He was a capable tanner, dealing with a capable whittle-maker, and would probably have exacted the penalty of a faitour whittle-maker's ears for failing in his bargain. In modern times, by the middleman process, this kind of personal satisfaction is out of the question, and the only mode of dealing with the

evil is to lessen the numbers of the ignorant by education. Make it a part of their education to judge rightly of the tools and instruments they have to use, and they will know how to select the right ones. Scissors and knives that won't cut can only be regarded as the toys of grown babies. Natural fools will always remain, but when ignorance ceases, the fools will be more under protection, and the unconscientious shrewd men will find that their trade won't pay—that they themselves are only 'fools with a circumbendibus'. Mr. Wilson could, probably, have given us some curious histories as to the origin of a trade process for keeping up wages, peculiar to Sheffield, called 'rattening', for that is part of the business of cutlery—blowing up a mill or boiler with gunpowder as a summary punishment for infringing trade prices.

CHALYBS

Some Activities of Other Societies and Organizations

MEETINGS

- MON. 16 APR. Electrical Engineers, Institution of, Savoy Place, W.C.2. 5.30 p.m. *Inspection and Maintenance of Wood Poles* (Discussion).
- TUES. 17 APR. British Architects, Royal Institute of, at 66 Portland Place, W.1. 6 p.m. D. L. Medd: *Colour in Buildings*.
- Electrical Engineers, Institution of, Savoy Place, W.C.2. 5.30 p.m. (1) F. C. Widdis: *The Indirectly Heated Thermistor as a Precise A.C./D.C. Transfer Device*. (2) A. M. Thompson: *A Bridge for the Measurement of Permittivity*.
- Industrial Transport Association, at the Royal Society of Arts, W.C.2. 6.30 p.m. R. H. Kitson: *Road Transport Operation in a Provincial Electricity Board*.
- Manchester Geographical Society, 16 St. Mary's Parsonage, Manchester, 3. 6.30 p.m. D. O. Dearden: *The Bridgewater Canal*.
- Mechanical Engineers, Institution of, 1 Birdcage Walk, S.W.1. 5.30 p.m. V. E. Gough: *Front Suspension and Tyre Wear*.
- WED. 18 APR. Folk-Lore Society, at the University College, Gower Street, W.C.1. 7.30 p.m. C. S. Mundy: *Polyphemus in Turkish legend*.
- Meteorological Society, Royal, 40 Cromwell Road, S.W.7. 5 p.m. Dr. R. C. Sutcliffe: *The moisture balance of the Atmosphere*.
- Microscopical Society, Royal, Tavistock House South, Tavistock Square, W.C.1. 5.30 p.m. Dr. R. J. Goldacre: *Simple Micromanipulators*.
- Petroleum, Institute of, at 26 Portland Place, W.1. 6 p.m. H. D. Newlyn: *Distribution of Petroleum in the United Kingdom*.
- THURS. 19 APR. Electrical Engineers, Institution of Savoy Place, W.C.2. 5.30 p.m. (1) J. J. Bates and Professor A. Tustin: *Temperature Rises in Electrical Machines as Related to the Properties of Thermal Networks*. (2) Professor A. Tustin and J. J. Bates: *Temperature Rises in Electrical Machines on Variable Load and with Variable Speed*. (3) Professor A. Tustin, D. F. Nettell and R. Solt: *Performance and Heating Curves for Motors on Short-Run Duties*.
- Incorporated Plant Engineers, at the College of Preceptors, Bloomsbury Square, W.C.1. 7 p.m. *Civil and other Engineering Problems in District Heating Schemes*.
- FRI. 20 APR. British Sound Recording Association, at the Royal Society of Arts, W.C.2. 7.15 p.m. Symposium: *Industrial uses of Magnetic Recording*, by D. T. N. Williamson.
- Engineers, Junior Institution of, Pepys House, 14 Rochester Row, S.W.1. 7 p.m. H. J. N. Riddle: *Sensitive Instruments used by Faraday and Unchanged in Present Everyday Use*.
- Engineers and Shipbuilders, North East Coast Institution of, at the Mining Institute, Newcastle-upon-Tyne. 6.15 p.m. J. Calderwood: *Geared-Diesel Marine Machinery with particular reference to the Performance of Two Installations of Different Types*.
- Mechanical Engineers, Institution of, 1 Birdcage Walk, S.W.1. 5.30 p.m. D. L. Marples, J. F. A. Radford and J. L. Reddaway: *Experimental Courses in Graduate Training*.
- MON. 23 APR. Geographical Society, Royal, South Kensington, S.W.7. 5.30 p.m. Film Show: *Great Barrier Reef and other Australian Films*.
- TUES. 24 APR. British Decorators and Interior Designers, Incorporated Institute of, at the Royal Society of Arts, W.C.2. 6.30 p.m. James Lawrence: *Some Observations on Colour*.
- Manchester Geographical Society, 16 St. Mary's Parsonage, Manchester, 3. 6.30 p.m. Mrs. C. M. Gordon: *In and About Palestine*.
- WED. 25 APR. Archaeological Institute of Great Britain and Ireland, Royal, at the Society of Antiquaries of London, Burlington House, Piccadilly, W.1. 5 p.m. John H. Harvey: *The Masons of Westminster Abbey*.
- British Foundrymen, Institute of, at the Waldorf Hotel, W.C.2. 7 p.m. A. W. Bartlett: *Casting of a Large Winding-drum Cheek*.
- Metals, Institute of, 4 Grosvenor Gardens, S.W.1. 6.45 p.m. Professor C. S. Smith: *The Beginnings of Metallurgy*.
- THURS. 26 APR. Chadwick Trust, at the Royal Society of Health, 90 Buckingham Palace Road, S.W.1. 5.30 p.m. J. Rawlinson: *The Centenary of London's Main Drainage System*.
- Geographical Society, Royal, South Kensington, S.W.7. 5.30 p.m. Film Show: *Weather Map and other Films for Teachers*.

OTHER ACTIVITIES

- NOW UNTIL 22 APR. Imperial Institute, South Kensington, S.W.7. *Exhibition of Indian Paintings and Engravings by "Sudhi"*.
- MON. 16 APR. UNTIL SUN. 22 APR. Imperial Institute, South Kensington, S.W.7. 12.30 p.m., 1.15 p.m. and 3 p.m. Weekdays, 3 p.m. and 4 p.m. Saturdays, 3 p.m., 4 p.m. and 5 p.m. Sundays. Films: *Our Southern Homeland—India; National Parks of Queenstand—Australia*.
- WED. 18 APR. The Building Centre, 26 Store Street, W.C.1. 12.45 p.m. Film Show: *Power Tools in the Building Industry*.
- MON. 23 APR. UNTIL SUN. 29 APR. Imperial Institute, South Kensington, S.W.7. 12.30 p.m., 1.15 p.m. and 3 p.m. Weekdays, 3 p.m. and 4 p.m. Saturdays, 3 p.m., 4 p.m. and 5 p.m. Sundays. Films: *Northern Ireland Coast; Rhodesia Patrol*.
- WED. 25 APR. The Building Centre, 26 Store Street, W.C.1. 12.45 p.m. Film Show: *More than meets the Eye (Plumbers Brassfoundry)*.
- NOW UNTIL 18 MAY. Wood Engravers, Society of, at The Crafts Centre of Great Britain, 16-17 Hay Hill, W.1. *Exhibition of Wood Engravings and Colour Prints*.
- NOW UNTIL 30 MAY. Imperial Institute, South Kensington, S.W.7. *Exhibition of Current Issues: Commonwealth Postage Stamps*.